

FIG. 1

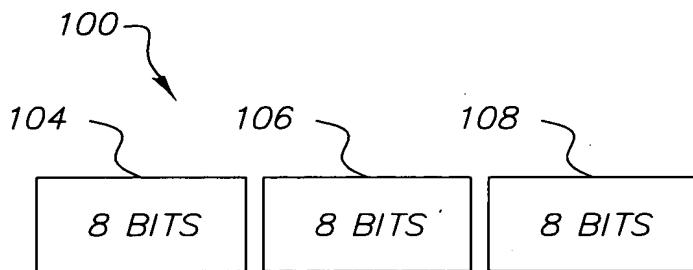


FIG. 3

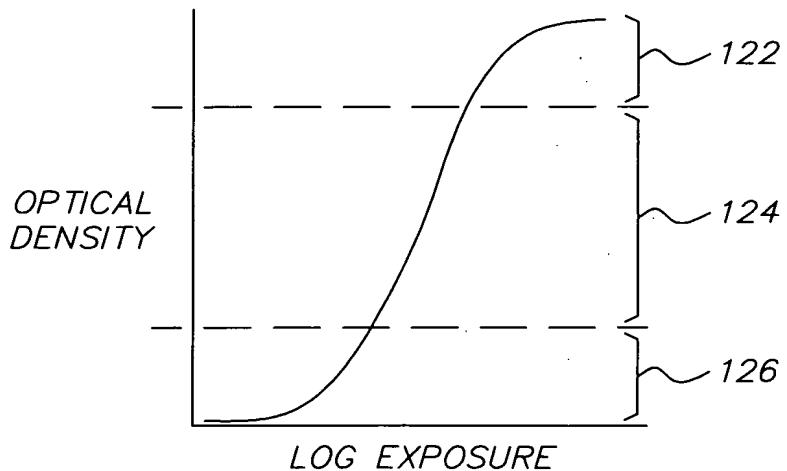


FIG. 4

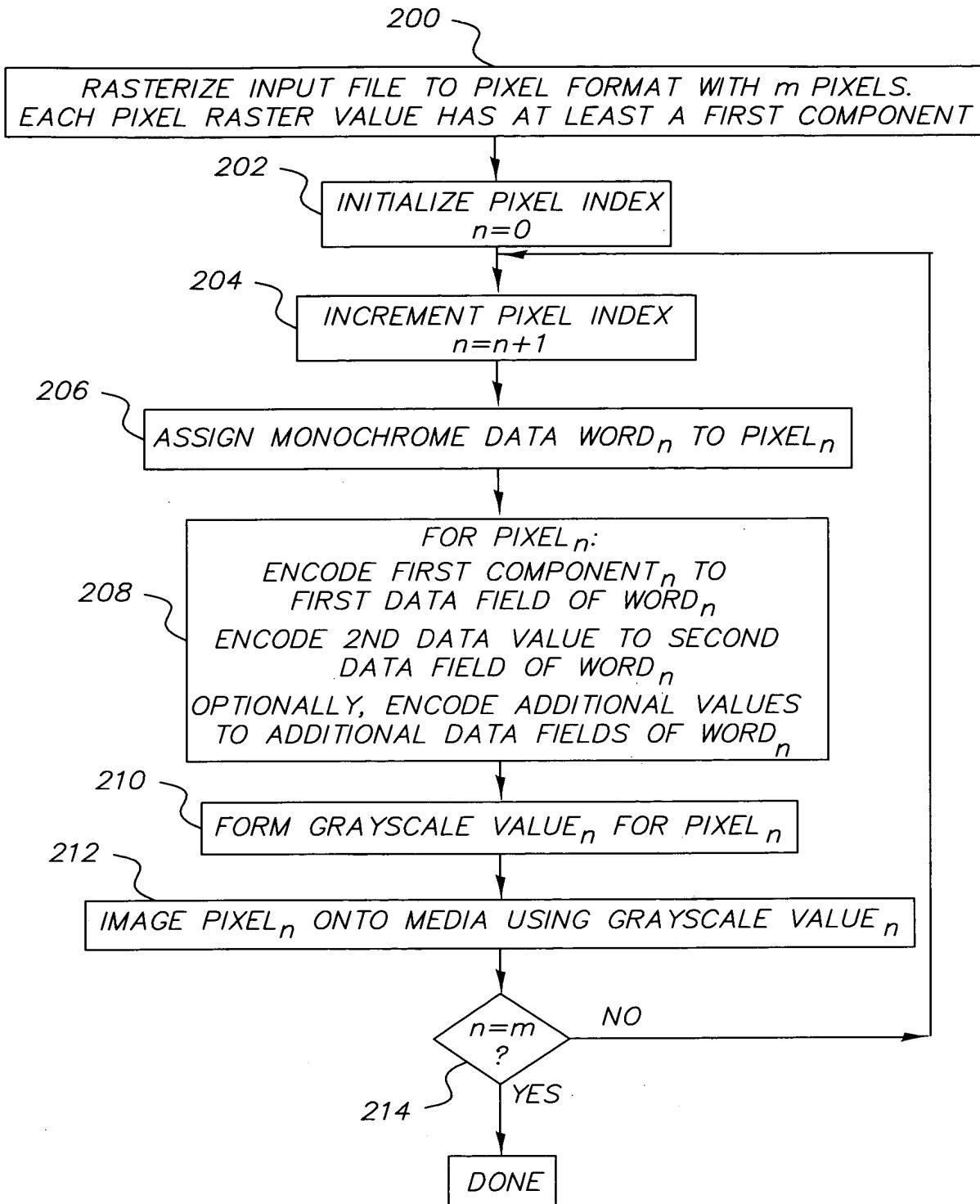


FIG. 2

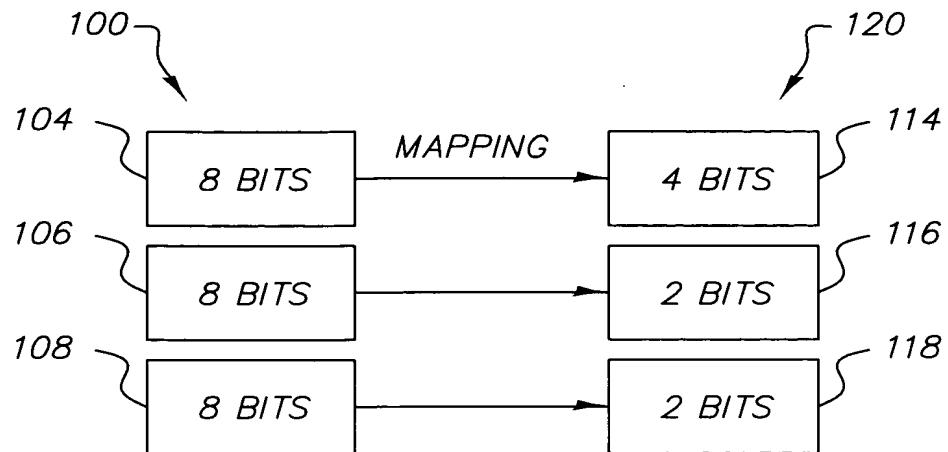


FIG. 5

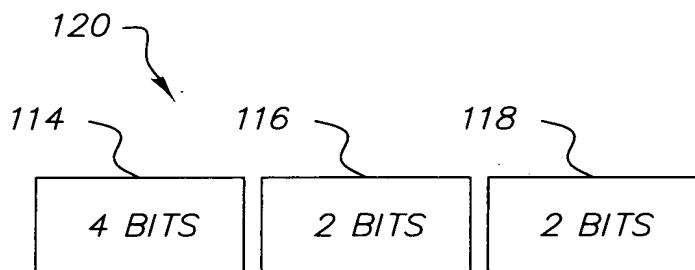


FIG. 6

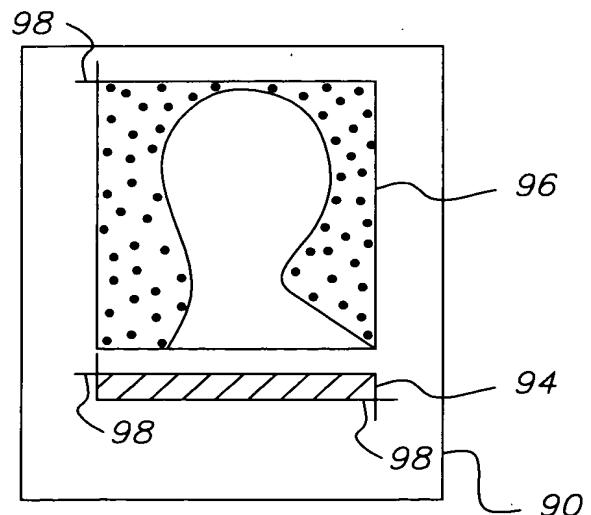


FIG. 7

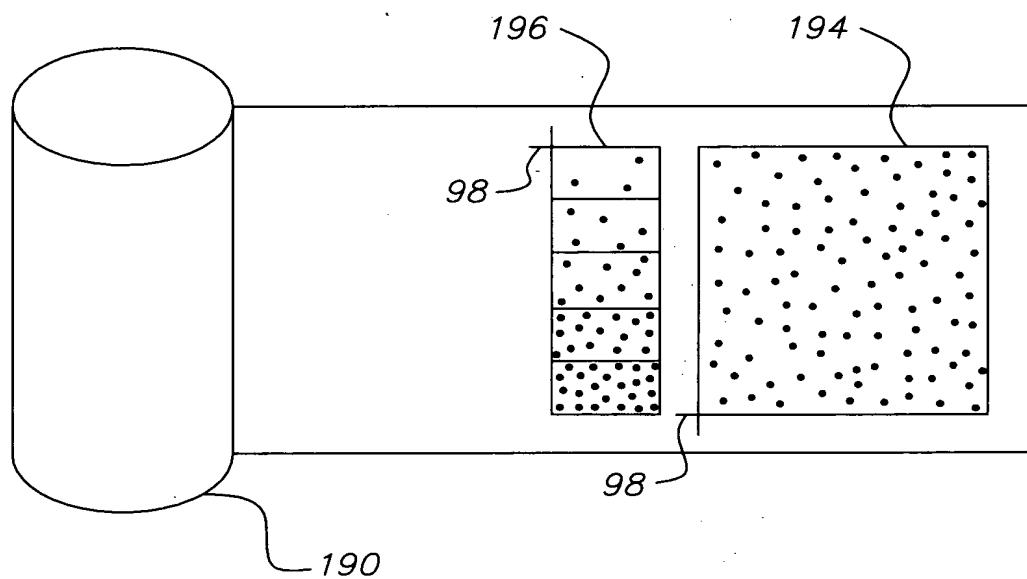


FIG. 8

```
<Color_Encoding_Metadata>
  <Preservation_Media>
    <Media_Read_Calibration>
      <Step_Wedge_Target_Location>
        <Frame_Number>5</Frame_Number>
        <Location_in_Frame>
          <x>1 mm</x>
          <y>1 mm</y>
        </Location_in_Frame>
      </Step_Wedge_Target_Location>
      <Step_Wedge>
        <Number_of_Density_Steps>3</Number_of_Density_Steps>
        <Density_Step ID="1">
          <Density_Value>.10</Density_Value>
          <Size>3 x 3 mm</Size>
        </Density_Step>
        <Density_Step ID="2">
          <Density_Value>1.0</Density_Value>
          <Size>3 x 3 mm</Size>
        </Density_Step>
        <Density_Step ID="3">
          <Density_Value>2.0</Density_Value>
          <Size>3 x 3 mm</Size>
        </Density_Step>
      </Step_Wedge>
    </Media_Read_Calibration>
    <Media_Write_Calibration>
      <Step_Wedge>
        <Number_of_Density_Steps>3</Number_of_Density_Steps>
        <Density_Step ID="1">
          <Code_Value>0</Code_Value>
        </Density_Step>
        <Density_Step ID="2">
          <Code_Value>128</Code_Value>
        </Density_Step>
        <Density_Step ID="3">
          <Code_Value>255</Code_Value>
        </Density_Step>
      </Step_Wedge>
    </Media_Write_Calibration>
  </Preservation_Media>
  <Writer_Characteristics>
    <Spot_Size>
      <Dot_Pitch>3.3 microns</Dot_Pitch>
      <Dot_Width>6.0 microns</Dot_Width>
    </Spot_Size>
    <In_Track_DPI>8000</In_Track_DPI>
    <Cross_Track_Pitch>3.3 microns</Cross_Track_Pitch>
  </Writer_Characteristics>
</Color_Encoding_Metadata>
```

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Fig. 9

```
<?xml version="1.0" encoding="UTF-8"?>
<Image_Colour_Encoding>
  <Color_Coding_Name>CIELab</Color_Coding_Name>
  <Number_of_Channels>3</Number_of_Channels>
  <Number_of_Colour_Encoded_Monochrome_Images>1</Number_of_Colour_Encoded_Monochrome_Images>
  <Monochrome_Value_Bit_Depth>8</Monochrome_Value_Bit_Depth>
  <Mapping_Method_Name>Global Frequency Analysis</Mapping_Method_Name>
  <Mapping_Scheme>Map Minimum to Maximum Value</Mapping_Scheme>
  <Mapping_Bit_Grouping_Catagory>Bit Wise Linear</Mapping_Bit_Grouping_Catagory>
  <Bit_Relation_Mapping>
    <Color_Channel ID="1"> 94h
    ...
    </Color_Channel> 94c1
    <Color_Channel ID="2"> 94c2
    ...
    </Color_Channel> 94c3
    ...
    </Color_Channel> 94t
  </Bit_Relation_Mapping>
</Image_Colour_Encoding>
```

Fig. 10a

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```
<Color_Channel ID="1">
  <Name>Lightness (L)</Name>
  <Number_of_Bits>4</Number_of_Bits>
  <Monochrome_Bit_Position>7,6,5,4</Monochrome_Bit_Position>
  <Most_Significant_Bit>7 </Most_Significant_Bit>
  <Image_Color_Channel_Value_Range>0 to 100</Image_Color_Channel_Value_Range>
  <Mapping_Definition>
    <Channel_Value min="0" max="5">
      <Encoded_Value>0</Encoded_Value>
      <Decode_Value>0</Decode_Value>
    </Channel_Value>
    <Channel_Value min="6" max="11">
      <Encoded_Value>1</Encoded_Value>
      <Decode_Value>6</Decode_Value>
    </Channel_Value>
    <Channel_Value min="12" max="17">
      <Encoded_Value>2</Encoded_Value>
      <Decode_Value>12</Decode_Value>
    </Channel_Value>
    <Channel_Value min="18" max="25">
      <Encoded_Value>3</Encoded_Value>
      <Decode_Value>18</Decode_Value>
    </Channel_Value>
    <Channel_Value min="26" max="31">
      <Encoded_Value>4</Encoded_Value>
      <Decode_Value>26</Decode_Value>
    </Channel_Value>
    <Channel_Value min="32" max="37">
      <Encoded_Value>5</Encoded_Value>
      <Decode_Value>32</Decode_Value>
    </Channel_Value>
    <Channel_Value min="38" max="43">
      <Encoded_Value>6</Encoded_Value>
      <Decode_Value>38</Decode_Value>
    </Channel_Value>
    <Channel_Value min="44" max="51">
      ...
    <Channel_Value min="52" max="57">
      ...
    <Channel_Value min="58" max="63">
      ...
    <Channel_Value min="64" max="69">
      ...
    <Channel_Value min="70" max="77">
      ...
    <Channel_Value min="78" max="81">
      <Encoded_Value>12</Encoded_Value>
      <Decode_Value>81</Decode_Value>
    </Channel_Value>
    <Channel_Value min="82" max="88">
      <Encoded_Value>13</Encoded_Value>
      <Decode_Value>88</Decode_Value>
    </Channel_Value>
    <Channel_Value min="89" max="94">
      <Encoded_Value>14</Encoded_Value>
      <Decode_Value>94</Decode_Value>
    </Channel_Value>
    <Channel_Value min="95" max="100">
      <Encoded_Value>15</Encoded_Value>
      <Decode_Value>100</Decode_Value>
    </Channel_Value>
  </Mapping_Definition>
</Color_Channel>
```

94c1

Fig. 10b

```
<Color_Channel ID="2">
  <Name>Chroma (a)</Name>
  <Number_of_Bits>2</Number_of_Bits>
  <Monochrome_Bit_Position>3,2</Monochrome_Bit_Position>
  <Most_Significant_Bit>3</Most_Significant_Bit>
  <Image_Color_Channel_Value_Range>113 to 195</Image_Color_Channel_Value_Range>
  <!--Image Color Channel Range 113 to 195 maps to CIELab a* range -14 to 68 -->
  <Mapping_Definition>
    <Channel_Value min="113" max="132">
      <Encoded_Value>0</Encoded_Value>
      <Decode_Value>113</Decode_Value>
    </Channel_Value>
    <Channel_Value min="133" max="153">
      <Encoded_Value>1</Encoded_Value>
      <Decode_Value>133</Decode_Value>
    </Channel_Value>
    <Channel_Value min="154" max="174">
      <Encoded_Value>2</Encoded_Value>
      <Decode_Value>174</Decode_Value>
    </Channel_Value>
    <Channel_Value min="175" max="195">
      <Encoded_Value>3</Encoded_Value>
      <Decode_Value>195</Decode_Value>
    </Channel_Value>
  </Mapping_Definition>
</Color_Channel>
```

94c2

Fig. 10c

```
<Color_Channel ID="3">
  <Name>Chroma (b)</Name>
  <Number_of_Bits>2</Number_of_Bits>
  <Monochrome_Bit_Position>1,0</Monochrome_Bit_Position>
  <Most_Significant_Bit>1</Most_Significant_Bit>
  <Image_Color_Channel_Value_Range>107 to 210</Image_Color_Channel_Value_Range>
  <!--Image Color Channel Range 107 to 210 maps to CIELab b* range -20 to 83 -->
  <Mapping_Definition>
    <Channel_Value min="107" max="132">
      <Encoded_Value>0</Encoded_Value>
      <Decode_Value>107</Decode_Value>
    </Channel_Value>
    <Channel_Value min="133" max="158">
      <Encoded_Value>1</Encoded_Value>
      <Decode_Value>133</Decode_Value>
    </Channel_Value>
    <Channel_Value min="159" max="184">
      <Encoded_Value>2</Encoded_Value>
      <Decode_Value>184</Decode_Value>
    </Channel_Value>
    <Channel_Value min="185" max="210">
      <Encoded_Value>3</Encoded_Value>
      <Decode_Value>210</Decode_Value>
    </Channel_Value>
  </Mapping_Definition>
</Color_Channel>
```

94c3

Fig. 10d

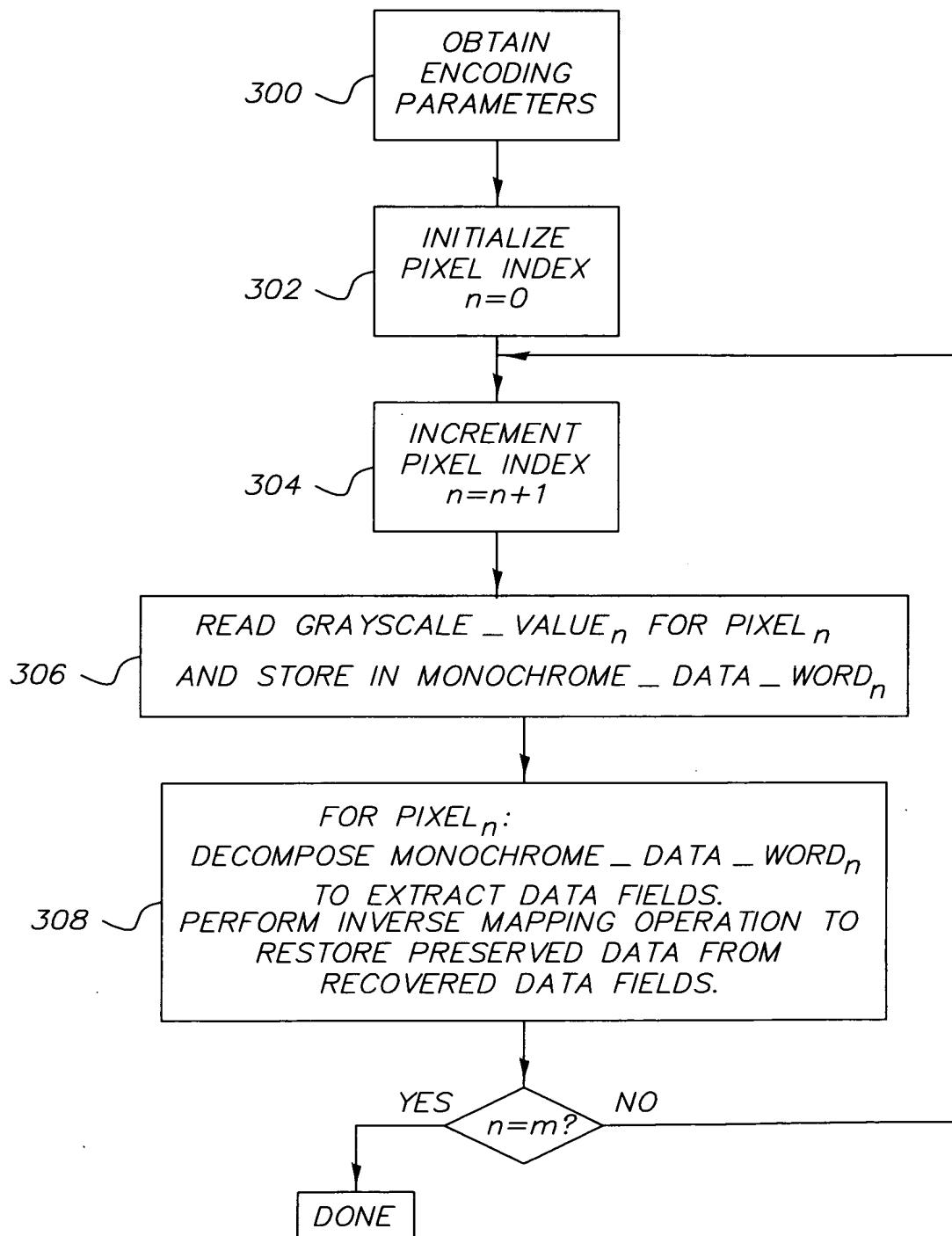


FIG. 11

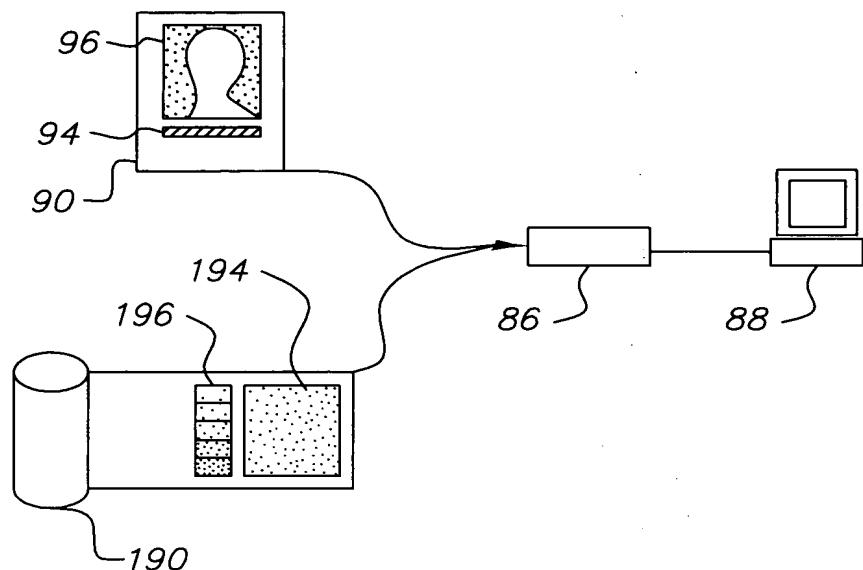


FIG. 12

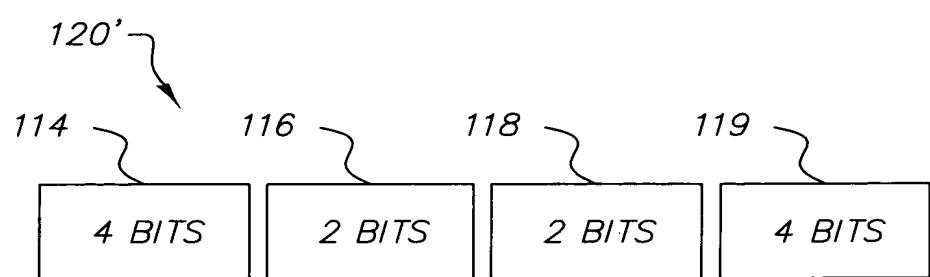


FIG. 13